



Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

23. (Previously Presented) A method of generating a temperature gradient comprising:
attaching two electrical connectors to a semiconducting wafer, wherein each of the connectors are adjacent to each other and attached to the wafer at an attachment site with a gap disposed between the attachment sites; and

connecting a power source to the wafer through the two electric connectors to cause current flow through the wafer and a continuous temperature gradient to be formed on a surface of the wafer.

24. (Currently Amended) The method of claim 23 wherein the apparatus further comprises a temperature sensor attached to the wafer at the same edge of the wafer to which the electrical connectors are attached and the temperature ~~sense~~ sensor also being electrically connected to a temperature controller.

25. (Original) The method of claim 24 further comprising selecting a set point temperature on the temperature controller.

26. (Original) The method of claim 23 wherein the temperature gradient formed is substantially perpendicular to an attachment line connecting the two connectors.

27. (Original) The method of claim 26 wherein the temperature gradient formed is between about 0.1°C per millimeter and about 1.0°C per millimeter.

28. (Original) The method of claim 26 wherein the temperature gradient is between about 0.25°C per millimeter and about 0.7°C per millimeter.

29. (Original) The method of claim 23 wherein the wafer comprises silicon.
30. (Original) The method of claim 23 further comprising placing one or more stratum on the wafer to generate a temperature gradient on the stratum.
31. (Previously Presented) The method of claim 30 wherein the stratum comprises a material having a thermal conductivity that is significantly lower than that of the surface of the wafer.
32. (Original) The method of claim 30 wherein the stratum are selected from the group consisting of microscopic glass slides, fluidic cells, liquid, cover slips, acrylamide gel, DNA chips, protein chips and combinations thereof.
73. (Previously Presented) A method of generating a temperature gradient on a stratum comprising placing the stratum in thermal contact on a surface having a temperature gradient, the stratum having a thermal conductivity that is significantly lower than that of the surface.
74. (Original) The method of claim 73 wherein the surface is a silicon wafer.
75. (Original) The method of claim 73 wherein the surface comprises aluminum blocks.
76. (Original) The method of claim 73 wherein the temperature gradient on the surface is generated by thermoelectric Peltier devices.
77. (Original) The method of claim 73 wherein the stratum comprises materials selected from the group consisting of glass, silicon and plastic.

78. (Previously Presented) The method of claim 73 wherein the thermal conductivity of the stratum is about 1 W/m/K or less.

79. (Previously Presented) A method of generating a temperature gradient on a stratum comprising placing the stratum in thermal contact on a surface having a temperature gradient, the stratum comprising materials selected from the group consisting of glass, silicon and plastic.

80. (Previously Presented) The method of claim 79 wherein the stratum has a thermal conductivity that is significantly lower than that of the surface.

81. (Previously Presented) The method of claim 80 wherein the thermal conductivity of the stratum is about 1 W/m/K or less.